

**Remarks: - General**

The above amendment addresses those areas of the patent requiring changes as outlined in the Office Action Summary. This section addresses in successive order the subject of those newly cited patents from the examiner followed by those areas of the patent application requiring attention as listed in the attached Office Action Summary pages entitled "Detailed Action". All remarks on amended claims, as addressed in this section, were written to stand-alone and not need to refer to any prior remarks on previous claims as a convenience.

**Comment on Patents Cited by the Examiner**

It is imperative that those patents originally cited within the application and on form PTO/SB/08A (08-03) submitted with the application remain referenced for the sole purpose that those patents address the same technical subject matter very closely and are referenced within the Prior Art of the Invention section of the application. There is no objection on behalf of the applicant to append the list of those patents originally cited with the addition of those recommended patents cited by the examiner as listed on form PTO-892 attached with the Office Action since the field of study is similar and citing these added patents is for assistance in restructuring the claims section within this amendment.

**Comment on Technical Applicability of Patents Cited by Examiner**

Concerning patent no. 6,108,220 entitled 'Solid State Fail-Safe Control of an AC Load Utilizing Synchronous Switching' by Raymond C. Franke dated August 22, 2000, this invention uses an input AC power source to drive an output AC load assuming a control voltage acting as a switching voltage is present. If this control voltage is removed then power is not applied to the load. The applicant finds citing the technical content of this patent inapplicable with this patent application since the subject does not technically correlate.

Concerning patent no. 5,091,841 entitled 'Procedure for the Control of Frequency Converter and Rectifier/Inverter Bridges, and a Modulator Unit Designed for Implementing the Procedure' by Heikki J. Tuusa dated February 25, 1992, this invention discusses the method for overcoming previous problems with pulse width modulation (PWM) sine wave recreation that can be used within dc-ac power inversion. PWM is used within this invention for converting the input dc voltage to a much higher dc voltage, yet this type of PWM together with closed loop control is used within the Isolated DC-DC Converter functional block alone (see Figure 1) ensuring that the output dc voltage of this functional block remains regulated. Nowhere within this invention is PWM used for sine wave recreation at the inverter output as discussed in this cited patent. The applicant finds citing the technical content of this patent inapplicable with this patent application since the subject does not technically correlate.

Concerning patent no. 4,128,868 entitled 'D-C Converter Using Pulsed Resonant Circuit' by Edward B. Gamble dated December 5, 1978, this invention discusses a method for reducing the quantity of transformer turns within a dc to dc converter based upon having a tuned resonant circuit used within. The applicant finds citing the technical content of this patent inapplicable with this patent application since the subject does not technically correlate.

**The Arrangement of the Specification as Provided in 37 CFR 1.77(b) and this Patent Application**

The applicant of this utility application originally followed the guidelines for writing this patent application set forth by the reference book written by Patent Attorney David Pressman entitled "Patent It Yourself, 9<sup>th</sup> edition", published by Nolo, CA. in the year 2003. The *suggested* Arrangement of the Specification as provided in 37 CFR 1.77 (b) deviates somewhat from the structure of this utility patent application however the applicant will oblige the request of the Office Action with its *suggested* Arrangement of the Specification by providing the following section cross-references.

- (a) TITLE OF THE INVENTION. Bi-directionally Driven Forward Converter for Neutral Point Clamping in a Modified Sine Wave Inverter
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS. (Refer to the contents of the section entitled "References Cited" within this Application.)
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT. Not Applicable.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT. James J. D'Amato, P.E.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC. Not Applicable.
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention (Refer to the contents of the section entitled "FIELD OF INVENTION" within this Application.)
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98 (Refer to the contents of the section entitled "PRIOR ART OF THE INVENTION" within this Application.)
- (g) BRIEF SUMMARY OF THE INVENTION. (Refer to the contents of the section entitled "SUMMARY" within this Application.)
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S). (Refer to the contents of the section entitled "DIAGRAMS" within this Application.)
- (i) DETAILED DESCRIPTION OF THE INVENTION. (Refer to the contents of the sections entitled "DETAILED DESCRIPTION ---FIGS. 1,2, AND 3 – PREFERRED EMBODIMENTS", "SUPPORTING EMBODIMENTS –FIG. 1 AND FIG. 4", and "ADDITIONAL SUPPORTING EMBODIMENTS – FIG. 1 AND FIG. 5 within this Application.)
- (j) CLAIM OR CLAIMS (Refer to the contents of the section also entitled "CLAIMS" within this Application.)
- (k) ABSTRACT OF THE DISCLOSURE (Refer to the contents of the section entitled "ABSTRACT" within this Application.)
- (l) SEQUENCE LISTING. Not Applicable.

**Comment of Claims 1-13 Rejection Due to Failing To Define The Invention In The Manner Required by 35 U.S.C. 112 Second Paragraph**

Since the disposition of all claims were both pending and rejected, the applicant has rewritten all claims to define the invention in a more structured format keeping the quantity of claims the same in addition to its subject matter and keeping their independent or dependent classification the same. When writing the amended claims, the intention of the applicant was to allow each claim to be broad as to not be restricted to a specific design yet definite enough so that the topology of the invention remains protected in the event it is challenged in the future. Following is an explanation of each claims amended changes whereby each change satisfies those requests made within the Office Action and each explanation is written to "stand alone" similar to an independent claim having no dependency on any previously said claim. As a result of making such changes, the applicant is requesting a reconsideration and withdrawal of the statement where each claim is "narrative in form and replete with indefinite and functional or operational language" as stated by the examiner since all claims have been amended to a form of a similar language type and structure to those claims within the patents originally cited and the patents referenced and recommended citing by the examiner. If a claim recites in a functional language, its acceptance is explained within.

**Revision of Claim 1 for Claim Rejection Per 35 U.S.C. 112 Second Paragraph**

This claim, being the first independent claim, was rewritten so as to restate the original claim with embellishments. The first sentence was amended to clarify that the invention is used within a dc to ac inverter followed by a breakdown of the topologies functional blocks required for its operation. It is these functional blocks that would, if needed, be further referenced in future claims and the interoperability of each functional block within this claim would be referenced to a preceding functional block. Given the fact that this claim contains functional language and in referring to MPEP 2173.05(g), "there is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. In re Swinehart, 439 F.2d 210, 169 USPO 226 (CCPA 1971)."

**Revision of Claim 2 for Claim Rejection Per 35 U.S.C. 112 Second Paragraph**

This claim, being the second independent claim since it does not reference to a preceding claim was amended so that the transformer be more specific in its characteristics yet remain broad enough so as to not restrict it within a specific design. To address the specific claim rejection in that there was a lack of antecedent basis for this limitation in the claim and in following the guidelines set forth in MPEP 2173.05(e), the word "said" was removed prior to the term "three terminal semiconductor device" and within this claim, the term "three terminal device" was revised to "three terminal semiconductor device". Although those cited patents by the examiner refer to both the terms "transistors" and "solid state switches" within, the applicant remains firm in selecting the term "three terminal semiconductor device(s)" since it entails both transistors (BJTs as shown in those cited patents by the examiner) and solid state switches. In addition, the term "three terminal semiconductor device(s)" also includes all types of thyristors, all types of Field Effect Transistors (FETs), and all types of Bipolar Junction Transistors (BJTs). The applicant therefore requests reconsideration and withdrawal of its original rejection.

**Revision of Claim 3 for Claim Rejection Per 35 U.S.C. 112 Second Paragraph**

Being a dependent claim to its preceding independent claim, this claim was amended by introducing the term "further comprising the characteristics" for narrowing the preceding claim to be more specific and the term "low impedance" for specifying a certain characteristic of the said transformer. The applicant selected the term "low impedance" so as to mandate a requirement of the device used within this invention yet not restrict its design to an exact value. Given the fact that this claim is functional language and in referring to MPEP 2173.05(g), "there is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. In re Swinehart, 439 F.2d 210, 169 USPQ 226 (CCPA 1971)." Since the dependency of this claim is more evident and is in a more structured format, the applicant requests a reconsideration and withdrawal of its original rejection.

**Revision of Claim 4 for Claim Rejection Per 35 U.S.C. 112 Second Paragraph**

Being a dependent claim to claim 2, this claim was amended by again introducing the term "further comprising the characteristics" for narrowing claim 2 to be more specific and the term "low impedance" for specifying a certain characteristic of the said transformer. In addition, to ensure that the said transformer is operating in the forward converter mode as opposed to a flyback mode of operation, the applicant has selected to amend this claim by introducing the term "that is synchronously resistively loaded". Given the fact that this claim is functional language and in referring to MPEP 2173.05(g), "there is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. In re Swinehart, 439 F.2d 210, 169 USPQ 226 (CCPA 1971)." Since the dependency of this claim is more evident and is in a more structured format, the applicant requests a reconsideration and withdrawal of its original rejection.

**Revision of Claim 5 for Claim Rejection Per 35 U.S.C. 112 Second Paragraph**

Being a dependent claim to claim 2, this claim was amended by again introducing the term "further comprising the characteristics" for narrowing claim 2 to be more specific and the term "low impedance" for specifying a certain characteristic of the said transformer. In addition, for clarity on performance, this claim was amended by adding the term "only for the duration of the output said modified sine wave deadtime" which restricts the operation of this invention during a specific time period within the output waveform and has replaced the term "inverter" with "dc to ac inverter" for clarifying that the source input is to the entire unit as a whole. Given the fact that this claim is functional language and in referring to MPEP 2173.05(g), "there is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. In re Swinehart, 439 F.2d 210, 169 USPQ 226 (CCPA 1971)." Since the dependency of this claim is more evident and is in a more structured format, the applicant requests a reconsideration and withdrawal of its original rejection.

**Revision of Claim 6 for Claim Rejection Per 35 U.S.C. 112 Second Paragraph**

This claim remains as an independent claim. This claim, however was amended by introducing the term "alternately biased at a high frequency for a duration in time within the said output said modified sine wave deadtime" for clarifying that the invention performs within a specific time period within the output waveform. The applicant requests a reconsideration and withdrawal of its original rejection.

**Revision of Claim 7 for Claim Rejection Per 35 U.S.C. 112 Second Paragraph**

This claim remains as an independent claim. This claim, however was amended by inserting the term “mentioned in claim 1” that will not change its status as an independent claim, removing the term “for their respective inputs” and changes to the phrasing, “provides 50 or more pulses and less than 500 pulses coincidental with the said output said modified sine wave deadtime” for being more specific as to the quantity of pulses required of this functional block. To address the specific claim rejection in that there was a lack of antecedent basis for this limitation in the claim and in following the guidelines set forth in MPEP 2173.05(e), the term “modified sine wave output” was replaced with “output said modified sine wave deadtime”. Since the appropriate changes have been made for satisfying 35 U.S.C. second paragraph, the applicant requests a reconsideration and withdrawal of its original rejection.

**Revision of Claim 8 for Claim Rejection Per 35 U.S.C. 112 Second Paragraph**

Being a dependent claim to claim 7, this claim was amended by introducing the term “further comprising” for narrowing claim 7 and following the format set forth by those patents cited as a reference by the examiner. Without restricting the design of this functional block to specific component values, the applicant requests a reconsideration and withdrawal of its original rejection.

**Revision of Claim 9 for Claim Rejection Per 35 U.S.C. 112 Second Paragraph /Objected Under 37 CFR 1.75(c)**

Being a dependent claim to claim 7, this claim was amended by introducing the term “further comprising” for narrowing claim 7 and following the format set forth by those patents cited as a reference by the examiner. In order to make the appropriate changes to keep this claim in proper dependent form per 37 CFR 1.75(c), the term at the end of the last sentence of the original claim that stated “...that support each said primary winding of the said transformer of claim 2” was eliminated in its entirety. As a result of making such changes, the applicant requests a reconsideration and withdrawal of this claims rejection and objection.

**Revision of Claim 10 for Claim Rejection Per 35 U.S.C. 112 Second Paragraph /Objected Under 37 CFR 1.75(c)**

Being a dependent claim to claim 7, this claim was amended by introducing the term “further comprising” for narrowing claim 7 and following the format set forth by those patents cited as a reference by the examiner. In addition and in order to make the appropriate changes to keep this claim in proper dependent form per 37 CFR 1.75(c), the term in the original claim that stated “...flow through each said primary winding of the said transformer of claim 2 so as to allow the ramping current attain its final value” was changed by removing the dependency on claim 2 making it implicit to those professed in this skilled art that it will be the transformer winding that will limit the current flow within the given time period of the high frequency snubber pulse generator. Due to the fact that there is no longer a dependency on more than one claim as originally stated, the applicant requests a reconsideration and withdrawal of this claims rejection and objection.

**Revision of Claim 11 for Claim Rejection Per 35 U.S.C. 112 Second Paragraph**

Being a dependent claim to claim 7, this claim was amended by introducing the term “further comprising the characteristics” for narrowing claim 7 and following the format set forth by those patents cited as a reference by the examiner. Additionally, the term in the original claim that stated “...two output power transistors...” was replaced with the term “...two said three terminal semiconductor devices...” so as to not restrict the usage of components in the half bridge converter to only one specific type. Given the fact that this claim is functional language and in referring to MPEP 2173.05(g), “there is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. In re Swinehart, 439 F.2d 210, 169 USPQ 226 (CCPA 1971).” Since the dependency of this claim is more evident and is in a more structured format, the applicant requests a reconsideration and withdrawal of its original rejection.

**Revision of Claim 12 for Claim Rejection Per 35 U.S.C. 112 Second Paragraph**

Being a dependent claim to claim 7, this claim was amended by introducing the term “further comprising the characteristics” for narrowing claim 7 and following the format set forth by those patents cited as a reference by the examiner. Additionally, the term in the original claim that stated “...two output power transistors...” was replaced with the term “...two said three terminal semiconductor devices...” so as to not restrict the usage of components in the half bridge converter to only one specific type. Given the fact that this claim is functional language and in referring to

MPEP 2173.05(g), “there is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. In re Swinehart, 439 F.2d 210, 169 USPQ 226 (CCPA 1971).” Since the dependency of this claim is more evident and is in a more structured format, the applicant requests a reconsideration and withdrawal of its original rejection.

**Revision of Claim 13 for Claim Rejection Per 35 U.S.C. 112 Second Paragraph**

Being a dependent claim to claim 7, this claim was amended by introducing the term “further comprising the characteristics” for narrowing claim 7 and following the format set forth by those patents cited as a reference by the examiner. Additionally and again, the original term “three terminal device” was replaced with the term “three terminal semiconductor device”. Given the fact that this claim is functional language and in referring to MPEP 2173.05(g), “there is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. In re Swinehart, 439 F.2d 210, 169 USPQ 226 (CCPA 1971).” Since the dependency of this claim is more evident and is in a more structured format, the applicant requests a reconsideration and withdrawal of its original rejection.

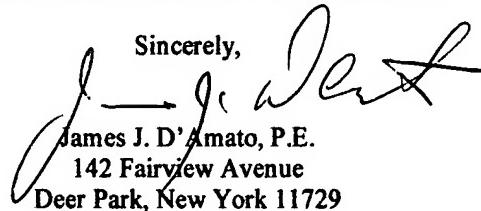
### Conclusion

As stated within the contents of this amendment, the applicant submit that the specification and claims are now in proper form, and that as discussed in both the specification section entitled "Prior Art of the Invention" and within this amendment, that the claims define patentability over the prior art.

### Conditional Request for Constructive Assistance

Given the fact that the applicant has incorporated the appropriate changes to oblige the requests of the examiner detailed in the Office Action, this amendment to the specification and claims of the application is believed on behalf of the applicant to have addressed correctly those actions so that the application as a whole is now in proper and definite form and defines novel structure which is also unobvious. If it is believed otherwise that this application as a whole is not in full condition for allowance, the applicant requests constructive assistance and suggestions of the examiner pursuant to MPEP paragraph 2173.02 and paragraph 707.07(j) so that the sole applicant can place the application in an allowable condition as soon as possible for granting and reception of the final patent.

Sincerely,

  
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